IN THE CLAIMS

5   1. A method of scheduling a plurality of components to be performed by a computing device, each component including an identifier, a component timing attribute, and one or more actions, each action of said one or more actions having an action timing attribute and at least one relationship with a related action selected from said one or more actions, said method comprising:

10   identifying an earliest component based on said component timing attribute;

identifying an earliest action of said one or more actions corresponding with said earliest component, based on said action timing attribute;

executing the identified earliest action to completion without

15   preemption;

obtaining a returned event from said identified earliest action in accordance with said executing; and

propagating said returned event to said related action in accordance with said at least one relationship.

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2.   The method of claim 1, wherein said identifying said earliest component identifies a plurality of components and said identifier is used to select said earliest component from said plurality of components; and

wherein said identifying said earliest action identifies a plurality of actions and a predefined preference is used to select said earliest action from said plurality of actions.

5   3.   The method of claim 1, further comprising:

sleeping for a delay period corresponding to a difference between a current time and a scheduled start time based on said action timing attribute of the identified earliest action, before said executing.

10   4.   The method of claim 3, wherein each component of said plurality of components includes a continuous state, further comprising:

updating said continuous state in accordance with said delay period, after said sleeping and before said executing.

15   5.   The method of claim 1, further comprising:

receiving an interrupt after said identifying an earliest component and before said executing, and in accordance therewith serving said interrupt and then performing again said identifying an earliest component, wherein said interrupt corresponds to one of a shell command and a connection request.

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6.   The method of claim 1, further comprising:

receiving an interrupt after said identifying an earliest component and before said executing, and in accordance therewith identifying a component corresponding to said interrupt and a reactive action therein, and in accordance

therewith executing said reactive action instead of the identified earliest action, wherein said interrupt corresponds to an alert input.

7.   The method of claim 1, further comprising:

receiving an interrupt after said identifying an earliest component and before said executing, and in accordance therewith serving said interrupt and then identifying a component corresponding to said interrupt and a reactive action therein, and in accordance therewith executing said reactive action instead of the identified earliest action, wherein said interrupt corresponds to one of a hardware interrupt having an interrupt service routine and a software interrupt having said interrupt service routine.

8.   The method of claim 1, wherein each component of said plurality of components further includes a plurality of states, and the method further comprising:

updating one or more state of said plurality of states related to a component corresponding to said earliest action, after said propagating.

9.   The method of claim 1 , wherein said returned event is stored in accordance with said obtaining, wherein the method further comprising:

deleting said returned event, after said propagating.

10.   The method of claim 1, further comprising:

controlling a slip of said plurality of components based on said component timing attribute, after said step of executing.

5   11.   The method of claim 1, further comprising:

identifying a next earliest one of said one or more actions, after said propagating; and

performing again said executing, obtaining and propagating in accordance with the next earliest action.

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12.   A computer-readable medium encoded with a computer program code for scheduling a plurality of components to be performed by a computing device, each component including an identifier, a component timing attribute, and one or more actions, each action of said one or more actions having an

15   action timing attribute and at least one relationship with a related action selected from said one or more actions, the program code causing a computer to execute a method comprising:

storing said plurality of components;

identifying an earliest component based on said component timing

20   attribute;

identifying an earliest action of said one or more actions corresponding with said earliest component, based on said action timing attribute;

executing the identified earliest action to completion without preemption;

obtaining a returned event from said identified earliest action in accordance with said executing; and

propagating said returned event to said related action in accordance with said at least one relationship.

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13. The computer-readable medium of claim 12, wherein said identifying said earliest component identifies a plurality of components and said identifier is used to select said earliest component from said plurality of components; and

wherein said identifying said earliest action identifies a plurality of

10 actions and a predefined preference is used to select said earliest action from said plurality of actions.

14. A computer program product for use in conjunction with a computer system, the computer program product comprising a computer

15 readable storage medium and a computer program mechanism embedded therein, the computer program mechanism comprising:

a program module that directs computer system components to function in a specified manner including processing at least one component for said computer system, the program module including instructions for:

20 (a) storing said at least one component in said computer readable storage medium, each component of said at least one component includes an identifier, a component timing attribute, and one or more actions, each action of said one or more actions having an action timing attribute and at least one relationship with a related action selected from said one or more actions;

(b) identifying an earliest component based on said component timing attribute;

(c) identifying an earliest action of said one or more actions corresponding with said earliest component, based on said action timing attribute;

(d) executing the identified earliest action to completion without preemption;

(e) obtaining a returned event from said identified earliest action in accordance with said executing; and

(f) propagating said returned event to said related action in accordance with said at least one relationship.

15. The computer program product of claim 14, the program module further comprising instructions for:

receiving an interrupt after said identifying an earliest component at (b) and before said executing at (d), and in accordance therewith serving said interrupt and then identifying a component corresponding to said interrupt and a reactive action therein, and in accordance therewith executing said reactive action instead of the identified earliest action, wherein said interrupt corresponds to one of a hardware interrupt having an interrupt service routine and a software interrupt having said interrupt service routine.

16.   The computer program product of claim 15, the program module further comprising instructions for:

updating one or more state related to a component corresponding to said earliest action, after said propagating at (f).

17.   The computer program product of claim 16, the program module further comprising instructions for:

controlling a slip of at least one components based on said component timing attribute, after said executing at (d).

18.   The computer program product of claim 17, the program module further comprising instructions for:

identifying a next earliest one of said one or more actions, after said propagating; and

performing again said executing, obtaining and propagating in accordance with the next earliest action.

19.   The computer program product of claim 14, wherein the program module further comprising instructions for:

sleeping for a delay period corresponding to a difference between a current time and said action timing attribute corresponding with said earliest action identified by said instructions at (c), before executing at (d).

20.   The computer program product of claim 19, wherein said storing instructions at (a) further comprising storing at least one state corresponding with each of said components, and wherein said instructions for sleeping further comprising instructions for updating said state in accordance with said delay period before operation of the execution instructions at (d).

21.   The computer program product of claim 20, wherein the program module further comprising instructions for:

receiving an interrupt after performing said identifying at (b) and before operation of said executing at (d), and in accordance therewith to service said interrupt and then to perform said identifying at (b) again.

22.   The computer program product of claim 21, wherein the program module further comprises instructions for:

receiving an interrupt after operation of said identifying instructions at (b) and before said executing instructions at (d), and in accordance therewith to identify a component corresponding to said interrupt and a corresponding reactive action therein, said reactive action selected from said one or more action stored at (a), and in accordance therewith to perform said executing at (d) using said reactive action instead of said identified earliest action.

23.   The computer program product of claim 19, wherein the program module further comprises instructions for:

controlling execution slip, said slip identifies a first time corresponding with the completion of executing at (d) and a second time corresponding with an expected completion of the executing at (d).

5   24.   The computer program product of claim 23, wherein instructions for controlling execution slip correspond to said current time and said action timing attribute.

       25.   The computer program product of claim 24, wherein instructions

10   for controlling execution slip further correspond to said current time and said component timing attribute.

       26.   An apparatus including a circuit for scheduling a plurality of components to be performed by a computing device, comprising:

15   a processor circuit configured to process instructions and data; and

             a memory circuit, coupled to said processor circuit, said memory circuit configured to store a computer-readable program code, said computer-readable program code comprising said instructions and data, configured to operate with said processor circuit, and including:

20   a computer-readable program storage code configured to store said plurality of components, each component including an identifier, a component timing attribute, and one or more actions, each action of said one or more actions having an action timing attribute and at least one relationship with a related action selected from said one or more actions;

a computer-readable program identification code configured to identify an earliest component based on said component timing attribute, and to identify identifying an earliest action of said one or more actions corresponding with said earliest component, based on said action timing attribute;

5   a computer-readable program execution code configured to execute the identified earliest action to completion without preemption;

a computer-readable program obtaining code configured to obtain a returned event from said identified earliest action in accordance with operation of said execution code; and

10   a computer-readable program propagation code configured to propagate said returned event to said related action in accordance with said at least one relationship.

27.   A computer-readable medium encoded with a computer program code
15   for scheduling a plurality of components to be performed by a computing device, each component including an identifier, a component timing attribute, and one or more actions, each action of said one or more actions having an action timing attribute and at least one relationship with a related action selected from said one or more actions, the program code causing a computer to execute
20   a method comprising:

storing said plurality of components;

identifying an earliest component based on said component timing attribute;

identifying an earliest action of said one or more actions corresponding

with said earliest component, based on said action timing attribute;

executing the identified earliest action to completion without preemption;

5   obtaining a returned event from said identified earliest action in

accordance with said executing; and

propagating said returned event to said related action in accordance with

said at least one relationship.

28.   A component processing system to execute at least one component,

10   including a component computer program, the system comprising:

a storage structure including a first memory;

a storage manager, coupled with said storage structure and said state

machine computer program, to store said at least one component on in said first

memory, each component of said at least one component includes an identifier, a

15   component timing attribute, and one or more actions, each action of said one or

more actions having an action timing attribute and at least one relationship with

a related action selected from said one or more actions;

an earliest component manager, coupled with said storage structure and

said component computer program, to identify an earliest component based on

20   said component timing attribute;

an earliest action manager, coupled with said storage structure and said

component computer program, to identify an earliest action of said one or more

actions corresponding with said earliest component, based on said action timing

attribute;

an execution manager, coupled with said storage structure and said component computer program, to execute the identified earliest action to completion without preemption;

a returned event manager, coupled with said storage structure and said component computer program, to obtain a returned event from said identified earliest action in accordance with said execution manager;

a propagation manager, coupled with said storage structure and said component computer program, to propagate said returned event to said related action in accordance with said at least one relationship; and

a processor, coupled with said storage manager, said earliest component manager, said earliest action manager, said execution manager, said returned event manager, and said propagation manager to execute said at least one component.

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29.   A state machine processing system for processing at least one state machine, including a state machine computer program, the system comprising:

means for storing a storage structure including a first memory;

5   means for storing said component, coupled with said storage structure and said state machine computer program, for storing said at least one component in said first memory, each component of said at least one component includes an identifier, a component timing attribute, and one or more actions, each action of said one or more actions having an action timing attribute and at

10   least one relationship with a related action selected from said one or more actions;

means for identifying an earliest component, coupled with said storage structure and said component computer program, for identifying an earliest component based on said component timing attribute;

15   means for identifying an earliest action, coupled with said storage structure and said component computer program, for identifying an earliest action of said one or more actions corresponding with said earliest component, based on said action timing attribute;

means for executing, coupled with said storage structure and said

20   component computer program, for executing the identified earliest action to completion without preemption;

means for obtaining an event, coupled with said storage structure and said component computer program, for obtaining a returned event from said identified earliest action in accordance with said execution manager;

means for propagating, coupled with said storage structure and said component computer program, for propagating said returned event to said related action in accordance with said at least one relationship; and

a processor means, coupled with said means for storing, said means for identifying an earliest component, said means for identifying an earliest action, said means for executing, said means for obtaining an event, and said means for propagating for processing said at least component.